



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,294	02/09/2004	Ken Miyagi	Q79837	8731

7590 09/24/2004

SUGHRUE, MION, ZINN, MACPEAK & SEAS
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER

CHU, JOHN S Y

ART UNIT	PAPER NUMBER
----------	--------------

1752

DATE MAILED: 09/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/773,294	MIYAGI ET AL	
	Examiner	Art Unit	
	John S. Chu	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/793,958.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/9/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the application filed February 9, 2004.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7 and 9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over KONO et al.

The claimed invention is drawn to a phenol novolak resin: having a peak intensity ratio of ortho-ortho bond (o-o)/ortho-para (p-o)/para-para bond (p-p) not substantially varying in each molecular weight fraction, said peak intensity ratio being detected in a resin structure by ¹³C-NMR analysis; and

having a weight average molecular weight (Mw) of 3000 to 20,000 in terms of polystyrene.

KONO et al discloses a photoresist composition comprising a novolak and a naphthoquinonediazide group-containing compound as a photosensitizing agent. Applicants are specifically directed to Examples 6, 8 and 10 for the process of synthesizing the novolak resins wherein the same component cresols as recited and disclosed in the examples as those used in the current application. The reaction is performed in the same solvent of λ -butyrolactone as recited in the application, and because the reactions sites on an m-cresol, a p-cresol and a xylenol remain consistent, upon condensing to form the resin, the resin would yield a consistent number of o-o

Art Unit: 1752

bonds, p-p bonds and o-p bonds that are do not vary substantially in each molecular weight fraction.

Because the US PTO does not have the facilities to verify the peak intensity ratio of the prior art resin, the examiner inserts by inherency that the resin in KONO et al would meet the claimed invention for the phenol novolak based on the consistency of the reaction sites on the cresol and xylenol compounds so as to have the same ratio of o-o bonds, o-p bonds and p-p bonds when condensed in the same solvent.

It would have been *prima facie* obvious to one of ordinary skill in the art of photoresist compositions and novolak resins to duplicate the prior art novolak resins in KONO et al and form a highly useful novolak resin and reasonably expecting same or similar results in pattern formation heat resistance and resolution for photoresist compositions as disclosed in KONO et al.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. ZAMPINI et al, JEFFRIES, III et al '795 or '289, BLAKENEY et al and SIZENSKY et al each disclose block copolymers having high ortho-ortho bonded novolak resins.

5. Claim 8 is allowed.

None of the prior art references of record disclose the claimed process for making a phenol novolak resin having a condensation reaction, a decomposing reaction, followed by a second condensation reaction.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (703) 308-2298. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

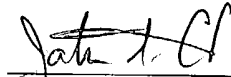
Application/Control Number: 10/773,294

Page 4

Art Unit: 1752

The fax phone number for this Group is (703) 305-5433.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.



John S. Chu

Primary Examiner, Group 1700

J.Chu

September 18, 2004